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**From:** Bunker, Byron [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=DDF7BCF023D241A9A477A2DC75D5901C-BUNKER, BYRON]  
**Sent:** 9/10/2016 2:13:58 PM  
**To:** Cohen, Janet [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=d94b854e69cd4f9e80db946bf9d1c1b2-Cohen, Janet]; Wehrly, Linc [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=64e5f31ccb4841018441b3bf074842d0-Wehrly, Linc]  
**CC:** Snyder, Jim [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=18260d02987d49e280fc03d2a8d18ddd-Snyder, Jim]; Ball, Joel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=92af2ab6f5274bc597249d04358ef25f-Ball, Joel]; Wright, David A [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=4f14a47c701547479b12bee35117d0a9-Wright, David A.]; Dalton, Joel [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=5e590ca117f84cc384adcf13b68b4358-Dalton, Joel]; Ott, William [/o=ExchangeLabs/ou=Exchange Administrative Group (FYDIBOHF23SPDLT)/cn=Recipients/cn=2e336c9b18744fe7aedff42ebd445c41-Ott, William]  
**Subject:** FW: DUH publishes first set of their PEMS results  
**Attachments:** ENG EKI-report NOx and CO2-PEMS-measurements\_092016.docx; ATT00001.htm; ENG Hintergrundpapier\_PK 07092016\_final\_16h49.docx; ATT00002.htm; ENG Press Release.docx; ATT00003.htm

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**From:** Grundler, Christopher  
**Sent:** Friday, September 09, 2016 3:40 PM  
**To:** Bunker, Byron <bunker.byron@epa.gov>  
**Subject:** Fwd: DUH publishes first set of their PEMS results

FYI

Christopher Grundler, Director  
Office of Transportation and Air Quality  
U.S. Environmental Protection Agency  
202/564-1682 (Washington DC)  
734/214-4207 (Ann Arbor MI)

Begin forwarded message:

**From:** "axel Friedrich" <[axel.friedrich.berlin@gmail.com](mailto:axel.friedrich.berlin@gmail.com)>  
**To:** "Catherine Witherspoon" <[Catherine@cwspoon.net](mailto:Catherine@cwspoon.net)>, "Croes, Bart@ARB" <[bart.croes@arb.ca.gov](mailto:bart.croes@arb.ca.gov)>, "Michael P. Walsh" <[mpwalsh@igc.org](mailto:mpwalsh@igc.org)>, "Curtis Moore" <[camoore@erols.com](mailto:camoore@erols.com)>, "Drew Kodjak" <[drew@theicct.org](mailto:drew@theicct.org)>, "Alan C. Lloyd" <[alloyd@theicct.org](mailto:alloyd@theicct.org)>, "Grundler, Christopher" <[grundler.christopher@epa.gov](mailto:grundler.christopher@epa.gov)>, "margo oge" <[margo.oge@gmail.com](mailto:margo.oge@gmail.com)>, "rcorey@arb.ca.gov" <[rcorey@arb.ca.gov](mailto:rcorey@arb.ca.gov)>, "John Shears" <[shears@ceert.org](mailto:shears@ceert.org)>, "vjw@ceert.org" <[vjw@ceert.org](mailto:vjw@ceert.org)>, "Christoph Wolff" <[christoph.wolff@europeanclimate.org](mailto:christoph.wolff@europeanclimate.org)>, "Margarita Parra" <[MParra@hewlett.org](mailto:MParra@hewlett.org)>, "Bert Fabian" <[Bert.Fabian@unep.org](mailto:Bert.Fabian@unep.org)>, "Justin Guay" <[JGuay@packard.org](mailto:JGuay@packard.org)>, "Hal Harvey" <[hal@energyinnovation.org](mailto:hal@energyinnovation.org)>, "Youngil Jeong" <[yjeong@kimm.re.kr](mailto:yjeong@kimm.re.kr)>, "Gianni Lopez" <[glopez@cmmolina.cl](mailto:glopez@cmmolina.cl)>  
**Subject:** Fwd: DUH publishes first set of their PEMS results

Dear friends,  
the following press release and results below. I am very proud to present the data of 39 vehicles I measured with my team in the last 4 month. Each vehicle was tested ten times at the same route. If you have any question please come back to me.

Greetings from the very warm Berlin.

Axel

Dear all,

please find background and report in English attached. The press release is still a draft version, I just received the translation in this minute and could not check it yet.

If you have any further question, just let me know.

Have a nice weekend, Dorothee

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**Von:** John German [mailto:[john@theicct.org](mailto:john@theicct.org)]

**Gesendet:** Donnerstag, 8. September 2016 22:37

**An:** Axel Friedrich <[axel.friedrich.berlin@gmail.com](mailto:axel.friedrich.berlin@gmail.com)>

**Cc:** Peter Mock <[peter@theicct.org](mailto:peter@theicct.org)>; Uwe Tietge <[uwe.tietge@theicct.org](mailto:uwe.tietge@theicct.org)>; Dorothee Saar <[saar@duh.de](mailto:saar@duh.de)>

**Betreff:** Fwd: DUH publishes first set of their PEMS results

Axel,

It is great to see all of the hard work and data. Thanks for getting this done.

It would be very helpful to me (and to ICCT) if you could provide some additional information about your testing program. In particular, the following information would be appreciated:

1. Some information about your driving route. For example, Emissions Analytics recently did some PEMS testing for us and they provided the following table on their test routes:
2. Given the well-publicized thermal window problem, we would like to know the ambient temperature at which each test was conducted.
3. Type-approval CO2 values, as it would be valuable to compare your test results against them.

John

Begin forwarded message:

**From:** Peter Mock <[peter@theicct.org](mailto:peter@theicct.org)>

**Subject:** DUH publishes first set of their PEMS results

**Date:** September 7, 2016 at 6:10:40 AM EDT

**To:** Yoann Bernard <[y.bernard@theicct.org](mailto:y.bernard@theicct.org)>, Muncrief Rachel <[rachel@theicct.org](mailto:rachel@theicct.org)>, John German <[john@theicct.org](mailto:john@theicct.org)>, Anup Bandivadekar <[anup@theicct.org](mailto:anup@theicct.org)>, Francisco Posada Sanchez <[francisco@theicct.org](mailto:francisco@theicct.org)>, Uwe Tietge <[uwe.tietge@theicct.org](mailto:uwe.tietge@theicct.org)>

**Cc:** Chelsea Baldino <[chelsea.baldino@theicct.org](mailto:chelsea.baldino@theicct.org)>

DUH today published their PEMS results for 36 diesel and 3 gasoline cars that they tested over the past few months. Those vehicles were tested over the summer months (May-Sep). DUH founded a new institute, called "Emissions Control Institute" (EKI in German), lead by Axel Friedrich. Two of the diesel cars were found to meet the Euro 6 limit under real-driving conditions: an Audi Q3 and a Mercedes E 220d (the Mercedes was provided by the manufacturer). A VW T6 LCV also met the Euro 6 limit.

Here the press release (all materials in German):  
[http://www.duh.de/pressemitteilung.html?&tx\\_ttnews\[tt\\_news\]=3925](http://www.duh.de/pressemitteilung.html?&tx_ttnews[tt_news]=3925)

A report with more details (note the table on p. 2/3):

[http://www.duh.de/uploads/media/EKI-Bericht\\_NOx\\_und\\_CO2-PEMS-Messungen\\_DUH.pdf](http://www.duh.de/uploads/media/EKI-Bericht_NOx_und_CO2-PEMS-Messungen_DUH.pdf)

A sketch of the 31 km testing route (around Axel's house):

[http://www.duh.de/uploads/media/Grafik\\_Teststrecke\\_PEMS-Messungen\\_DUH.pdf](http://www.duh.de/uploads/media/Grafik_Teststrecke_PEMS-Messungen_DUH.pdf)

I also cc Chelsea, in case you would like to include those additional measurement points for your upcoming paper.